

# 61-58.17

## Revised Total Coliform Rule

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## **A. Applicability.**

The provisions of R.61-58.17 apply to all community and non-community public water systems.

## **B. General Requirements.**

### **(1) General.**

The provisions of R.61-58.17 include both maximum contaminant level and treatment technique requirements.

### **(2) Compliance date.**

Systems must comply with the provisions of R.61-58.17 beginning April 1, 2016, unless otherwise specified in R.61-58.17.

### **(3) Violations of State Primary Drinking Water Regulations.**

Failure to comply with the applicable requirements of this regulation R.61-58.17 shall constitute a violation of the State Primary Drinking Water Regulations.

## **C. Analytical Methods and Laboratory Certification**

### **(1) Analytical methodology.**

(a) The standard sample volume required for analysis, regardless of analytical method used, is 100 ml.

(b) Systems need only determine the presence or absence of total coliforms and E. coli; a determination of density is not required.

(c) The time from sample collection to initiation of test medium incubation may not exceed 30 hours. Systems are encouraged but not required to hold samples below 10 deg. C during transit.

(d) If water having residual chlorine (measured as free, combined, or total chlorine) is to be analyzed, sufficient sodium thiosulfate (Na<sub>2</sub>S<sub>2</sub>O<sub>3</sub>) must be added to the sample bottle before sterilization to neutralize any residual chlorine in the water sample. Dechlorination procedures are addressed in Section 9060A.2 of Standard Methods for the Examination of Water and Wastewater (20th and 21st editions).

(e) Systems must conduct total coliform and E. coli analyses in accordance with one of the analytical methods in 40 CFR 141.852 or one of the alternative methods listed in Appendix A to subpart C of CFR 141.

### **(2) Laboratory Certification.**

Systems must have all compliance samples required under R.61-58.17 analyzed by a laboratory certified by the EPA or the Department to analyze drinking water samples. The laboratory used by the system must be certified for each method (and associated contaminant(s)) used for compliance monitoring analyses under this rule.

## **D. General Monitoring Requirements for All Public Water Systems.**

### **(1) Sample siting plans.**

(a) Systems must develop a written sample siting plan that identifies sampling sites and a sample collection schedule that are representative of water throughout the distribution system not later than March 31, 2016. These plans are subject to Department review and revision. Systems must collect total coliform samples according to the written sample siting plan. Monitoring required by R.61-58.17.E through R.61-58.17.I may take place at a customer's premise, dedicated sampling station, or other designated compliance sampling location. Routine and repeat sample sites and any sampling points necessary to meet the requirements of R.61-58.16 must be reflected in the sampling plan.

(b) Systems must collect samples at regular time intervals throughout the month, except that systems that use only ground water and serve 4,900 or fewer people may collect all required samples on a single day if they are taken from different sites.

(c) Systems must take at least the minimum number of required samples even if the system has had an *E. coli* MCL violation or has exceeded the coliform treatment technique triggers in R.61-58.17.J(1).

(d) A system may conduct more compliance monitoring than is required by R.61-58.17 to investigate potential problems in the distribution system and use monitoring as a tool to assist in uncovering problems. A system may take more than the minimum number of required routine samples and must include the results in calculating whether the coliform treatment technique trigger in R.61-58.17.J(1)(a)(i) and (ii) has been exceeded only if the samples are taken in accordance with the existing sample siting plan and are representative of water throughout the distribution system.

(e) Systems must identify repeat monitoring locations in the sample siting plan. Unless the provisions of R.61-58.17.D(1)(e)(i) or (1)(e)(ii) are met, the system must collect at least one repeat sample from the sampling tap where the original total coliform- positive sample was taken, and at least one repeat sample at a tap within five service connections upstream and at least one repeat sample at a tap within five service connections downstream of the original sampling site. If a total coliform-positive sample is at the end of the distribution system, or one service connection away from the end of the distribution system, the system must still take all required repeat samples. However, the Department may allow an alternative sampling location in lieu of the requirement to collect at least one repeat sample upstream or downstream of the original sampling site. Except as provided for in R.61-58.17.D (1)(e)(ii), systems required to conduct triggered source water monitoring under R.61-58.16.E(1) must take ground water source sample(s) in addition to repeat samples required under R.61-58.17.

(i) Systems may propose repeat monitoring locations to the Department that the system believes to be representative of a pathway for contamination of the distribution system. A system may elect to specify either alternative fixed locations or criteria for selecting repeat sampling sites on a situational basis in a standard operating procedure (SOP) in its sample siting plan. The system must design its SOP to focus the repeat samples at locations that best verify and determine the extent of potential contamination of the distribution system area based on specific situations. The Department may modify the SOP or require alternative monitoring locations as needed.

(ii) Ground water systems serving 1,000 or fewer people may propose repeat sampling locations to the Department that differentiate potential source water and distribution system contamination (e.g., by sampling at entry points to the distribution system). A ground water system with a single well required to conduct triggered source water monitoring may, with written Department approval, take one of its repeat samples at the monitoring location required for triggered source water monitoring under R.61-58.16.E(1)

if the system demonstrates to the Department's satisfaction that the sample siting plan remains representative of water quality in the distribution system. If approved by the Department, the system may use that sample result to meet the monitoring requirements in both R.61-58.16.E(1) and this section R.61-58.17.D.

(A) If a repeat sample taken at the monitoring location required for triggered source water monitoring is E. coli-positive, the system has violated the E. coli MCL and must also comply with R.61-58.16.E(1)(c). If a system takes more than one repeat sample at the monitoring location required for triggered source water monitoring, the system may reduce the number of additional source water samples required under R.61- 58.16.E(1)(c) by the number of repeat samples taken at that location that were not E. coli-positive.

(B) If a system takes more than one repeat sample at the monitoring location required for triggered source water monitoring under R.61- 58.16.E(1), and more than one repeat sample is E. coli-positive, the system has violated the E. coli MCL and must also comply with R.61- 58.16.F(1)(a).

(C) If all repeat samples taken at the monitoring location required for triggered source water monitoring are E. coli-negative and a repeat sample taken at a monitoring location other than the one required for triggered source water monitoring is E. coli-positive, the system has violated the E. coli MCL, but is not required to comply with R.61- 58.16.E(1)(c).

(f) The Department may review, revise, and approve, as appropriate, repeat sampling proposed by systems under R.61-58.17.D(1)(e)(i) and (ii). The system must demonstrate that the sample siting plan remains representative of the water quality in the distribution system. The Department may determine that monitoring at the entry point to the distribution system (especially for undisinfected ground water systems) is effective to differentiate between potential source water and distribution system problems.

## (2) Special purpose samples.

Special purpose samples, such as those taken to determine whether disinfection practices are sufficient following pipe placement, replacement, or repair, must not be used to determine whether the coliform treatment technique trigger has been exceeded. Repeat samples taken pursuant to R.61-58.17.I are not considered special purpose samples, and must be used to determine whether the coliform treatment technique trigger has been exceeded.

## (3) Invalidation of total coliform samples.

A total coliform-positive sample invalidated under R.61-58.17.D(3) does not count toward meeting the minimum monitoring requirements of this R.61-58.17.

(a) The Department may invalidate a total coliform-positive sample only if the conditions of R.61-58.17.D(3)(a)(i), (ii), or (iii) are met.

(i) The laboratory establishes that improper sample analysis caused the total coliform-positive result.

(ii) The Department, on the basis of the results of repeat samples collected as required under R.61-58.17.I(1), determines that the total coliform-positive sample resulted from a domestic or other non-distribution system plumbing problem. The Department cannot invalidate a sample on the basis of repeat sample results unless all repeat sample(s) collected at the same tap as the original total coliform-positive sample are also total coliform-positive, and all repeat samples collected at a location other than the original

tap are total coliform negative (e.g., the Department cannot invalidate a total coliform-positive sample on the basis of repeat samples if all the repeat samples are total coliform negative, or if the system has only one service connection).

(iii) The Department has substantial grounds to believe that a total coliform- positive result is due to a circumstance or condition that does not reflect water quality in the distribution system. In this case, the system must still collect all repeat samples required under R.61-58.17.I(1), and use them to determine whether a coliform treatment technique trigger in R.61-58.17.J has been exceeded. To invalidate a total coliform-positive sample under this paragraph, the decision and supporting rationale must be documented in writing, and approved and signed by the supervisor of the Department official who recommended the decision. The Department must make this document available to EPA and the public. The written documentation must state the specific cause of the total coliform-positive sample, and what action the system has taken, or will take, to correct this problem. The Department may not invalidate a total coliform-positive sample solely on the grounds that all repeat samples are total coliform negative.

(b) A laboratory must invalidate a total coliform sample (unless total coliforms are detected) if the sample produces a turbid culture in the absence of gas production using an analytical method where gas formation is examined (e.g., the Multiple-Tube Fermentation Technique), produces a turbid culture in the absence of an acid reaction in the Presence-Absence (P-A) Coliform Test, or exhibits confluent growth or produces colonies too numerous to count with an analytical method using a membrane filter (e.g., Membrane Filter Technique). If a laboratory invalidates a sample because of such interference, the system must collect another sample from the same location as the original sample within 24 hours of being notified of the interference problem, and have it analyzed for the presence of total coliforms. The system must continue to re-sample within 24 hours and have the samples analyzed until it obtains a valid result. The Department may waive the 24-hour time limit on a case-by-case basis. Alternatively, the Department may implement criteria for waiving the 24-hour sampling time limit to use in lieu of case-by-case extensions.

#### **E. Routine monitoring requirements for non-community water systems serving 1,000 or fewer people using only ground water.**

##### **(1) General.**

(a) The provisions of this section apply to non-community water systems using only ground water (except ground water under the direct influence of surface water, as defined in R.61-58.B - Definitions) and serving 1,000 or fewer people.

(b) Following any total coliform-positive sample taken under the provisions of this section, systems must comply with the repeat monitoring requirements and E. coli analytical requirements in R.61-58.17.I.

(c) Once all monitoring required by this section R.61-58.17.E and R.61-58.17.I for a calendar month has been completed, systems must determine whether any coliform treatment technique triggers specified in R.61-58.17.J have been exceeded. If any trigger has been exceeded, systems must complete assessments as required by R.61-58.17.J.

(d) For the purpose of determining eligibility for remaining on or qualifying for quarterly monitoring under the provisions of R.61-58.17.E(6)(d) and (7)(b), respectively, of this section R.61-58.17.E for transient non-community water systems, the Department may elect to not count monitoring violations under R.61-58.17.K(3)(a) if the missed sample is collected no later than the end of the monitoring period following the monitoring period in which the sample was missed. The system must collect the make-up sample in a different week than the routine sample for that monitoring period and should collect the sample

as soon as possible during the monitoring period. The Department may not use this provision under R.61-58.17.E(8). This authority does not affect the provisions of R.61-58.17.K(3)(a) and R.61-58.17.L(1)(d).

(2) Monitoring frequency for total coliforms.

Systems must monitor each calendar quarter that the system provides water to the public, except for seasonal systems or as provided under R.61-58.17.E(3) through R.61-58.17.E(8) and R.61-58.17.E(10). Seasonal systems must meet the monitoring requirements of R.61-58.17.E(9).

(3) Transition to R.61-58.17 - Revised Total Coliform Rule.

(a) Systems, including seasonal systems, must continue to monitor according to the total coliform monitoring schedules under R.61-58.5.G(1) that were in effect on March 31, 2016, unless any of the conditions for increased monitoring in R.61-58.17.E(6) are triggered on or after April 1, 2016, or unless otherwise directed by the Department.

(b) Beginning April 1, 2016, the Department must perform a special monitoring evaluation during each sanitary survey to review the status of the system, including the distribution system, to determine whether the system is on an appropriate monitoring schedule. After the Department has performed the special monitoring evaluation during each sanitary survey, the Department may modify the system's monitoring schedule, as necessary, or it may allow the system to stay on its existing monitoring schedule, consistent with the provisions of R.61-58.17.E. The Department may not allow systems to begin less frequent monitoring under the special monitoring evaluation unless the system has already met the applicable criteria for less frequent monitoring in R.61-58.17.E. For seasonal systems on quarterly or annual monitoring, this evaluation must include review of the approved sample siting plan, which must designate the time period(s) for monitoring based on site-specific considerations (e.g., during periods of highest demand or highest vulnerability to contamination). The seasonal system must collect compliance samples during these time periods.

(4) Annual site visits.

Beginning no later than calendar year 2017, systems on annual monitoring, including seasonal systems, must have an initial and recurring annual site visit by the Department that is equivalent to a Level 2 assessment or an annual voluntary Level 2 assessment that meets the criteria in R.61-58.17.J(2) to remain on annual monitoring. The periodic required sanitary survey may be used to meet the requirement for an annual site visit for the year in which the sanitary survey was completed.

(5) Criteria for annual monitoring. Beginning April 1, 2016, the Department may reduce the monitoring frequency for a well-operated ground water system from quarterly routine monitoring to no less than annual monitoring, if the system demonstrates that it meets the criteria for reduced monitoring in R.61-58.17.E(5)(a) through (5)(c), except for a system that has been on increased monitoring under the provisions of R.61-58.17.E(6). A system on increased monitoring under R.61-58.17.E(6) must meet the provisions of R.61-58.17.E(7) to go to quarterly monitoring and must meet the provisions of R.61-58.17.E(8) to go to annual monitoring.

(a) The system has a clean compliance history for a minimum of 12 months;

(b) The most recent sanitary survey shows that the system is free of sanitary defects or has corrected all identified sanitary defects, has a protected water source, and meets approved construction standards; and

(c) The Department has conducted an annual site visit within the last 12 months and the system has corrected all identified sanitary defects. The system may substitute a Level 2 assessment that meets the criteria in R.61-58.17.J(2) for the Department annual site visit.

(6) Increased Monitoring Requirements for systems on quarterly or annual monitoring.

A system on quarterly or annual monitoring that experiences any of the events identified in R.61-58.17.E(6)(a) through (6)(d) must begin monthly monitoring the month following the event. A system on annual monitoring that experiences the event identified in R.61-58.17.E(6)(e) must begin quarterly monitoring the quarter following the event. The system must continue monthly or quarterly monitoring until the requirements in R.61-58.17.E(7) for quarterly monitoring or R.61-58.17.E(8) for annual monitoring are met. A system on monthly monitoring for reasons other than those identified in R.61-58.17.E(6)(a) through (6)(d) is not considered to be on increased monitoring for the purposes of R.61-58.17.E(7) and (8).

(a) The system triggers a Level 2 assessment or two Level 1 assessments under the provisions of R.61-58.17.J in a rolling 12-month period.

(b) The system has an E. coli MCL violation.

(c) The system has a coliform treatment technique violation.

(d) The system has two monitoring violations under R.61-58.17 or one monitoring violation under R.61-58.17 and one Level 1 assessment under the provisions of R.61-58.17.J in a rolling 12-month period for a system on quarterly monitoring.

(e) The system has one monitoring violation under R.61-58.17 for a system on annual monitoring.

(7) Requirements for returning to quarterly monitoring.

The Department may reduce the monitoring frequency for a system on monthly monitoring triggered under R.61-58.17.E(6) to quarterly monitoring if the system meets the criteria in R.61-58.17.E(7)(a) and (7)(b).

(a) Within the last 12 months, the system must have a completed sanitary survey or a site visit by the Department or a voluntary Level 2 assessment by a party approved by the Department, be free of sanitary defects, and have a protected water source; and

(b) The system must have a clean compliance history for a minimum of 12 months.

(8) Requirements for systems on increased monitoring to qualify for annual monitoring.

The Department may reduce the monitoring frequency for a system on increased monitoring under R.61-58.17.E(6) if the system meets the criteria in R.61-58.17.E(7) plus the criteria in R.61-58.17.E(8)(a) and (8)(b).

(a) An annual site visit by the Department and correction of all identified sanitary defects. The system may substitute a voluntary Level 2 assessment by a party approved by the Department for the Department annual site visit in any given year.

(b) The system must have in place or adopt one or more additional enhancements to the water system barriers to contamination in R.61-58.17.E(8)(b)(i) through (8)(b)(v).

(i) Cross connection control, as approved by the Department.

(ii) An operator certified by the South Carolina Department of Labor, Licensing and Regulation - Environmental Certification Board or regular visits by a circuit rider certified by an appropriate State certification program.

(iii) Continuous disinfection entering the distribution system and a residual in the distribution system in accordance with criteria specified by the Department.

(iv) Demonstration of maintenance of at least a 4-log removal or inactivation of viruses as provided for under R.61-58.16.F(2)(c).

(v) Other equivalent enhancements to water system barriers as approved by the Department.

(9) Seasonal systems.

(a) Beginning April 1, 2016, all seasonal systems must demonstrate completion of a Department-approved start-up procedure, which may include a requirement for startup sampling prior to serving water to the public.

(b) A seasonal system must monitor every month that it is in operation unless it meets the criteria in R.61-58.17.E(9)(b)(i) through (iii) to be eligible for monitoring less frequently than monthly beginning April 1, 2016, except as provided under R.61- 58.17.E(3).

(i) Seasonal systems monitoring less frequently than monthly must have an approved sample siting plan that designates the time period for monitoring based on site-specific considerations (e.g., during periods of highest demand or highest vulnerability to contamination). Seasonal systems must collect compliance samples during this time period.

(ii) To be eligible for quarterly monitoring, the system must meet the criteria in R.61-58.17.E(7).

(iii) To be eligible for annual monitoring, the system must meet the criteria under R.61-58.17.E(8).

(c) The Department may exempt any seasonal system from some or all of the requirements for seasonal systems if the entire distribution system remains pressurized during the entire period that the system is not operating, except that systems that monitor less frequently than monthly must still monitor during the vulnerable period designated by the Department.

(10) Additional routine monitoring the month following a total coliform-positive sample.

Systems collecting samples on a quarterly or annual frequency must conduct additional routine monitoring the month following one or more total coliform-positive samples (with or without a Level 1 treatment technique trigger). Systems must collect at least three routine samples during the next month, except that the Department may waive this requirement if the conditions of R.61-58.17.E(10)(a), (b), or (c) are met. Systems may either collect samples at regular time intervals throughout the month or may collect all required routine samples on a single day if samples are taken from different sites. Systems must use the results of additional routine samples in coliform treatment technique trigger calculations under R.61-58.17.J(1).

(a) The Department may waive the requirement to collect three routine samples the next month in which the system provides water to the public if the Department, or an agent approved by the Department, performs a site visit before the end of the next month in which the system provides water to the public. Although a sanitary survey need not be performed, the site visit must be sufficiently detailed to allow the Department to determine whether additional monitoring and/or any corrective action is needed. The Department cannot approve an employee of the system to perform this site visit, even if the employee is an agent approved by the Department to perform sanitary surveys.

(b) The Department may waive the requirement to collect three routine samples the next month in which the system provides water to the public if the Department has determined why the sample was total coliform-positive and has established that the system has corrected the problem or will correct the problem before the end of the next month in which the system serves water to the public. In this case, the Department must document this decision to waive the following month's additional monitoring requirement in writing, have it approved and signed by the supervisor of the Department official who recommends such a decision, and make this document available to the EPA and public. The written documentation must describe the specific cause of the total coliform-positive sample and what action the system has taken and/or will take to correct this problem.

(c) The Department may not waive the requirement to collect three additional routine samples the next month in which the system provides water to the public solely on the grounds that all repeat samples are total coliform negative. If the Department determines that the system has corrected the contamination problem before the system takes the set of repeat samples required in R.61-58.17.I, and all repeat samples were total coliform negative, the Department may waive the requirement for additional routine monitoring the next month.

**F. Routine monitoring requirements for community water systems serving 1,000 or fewer people using only ground water.**

(1) General.

(a) The provisions of this section apply to community water systems using only ground water (except ground water under the direct influence of surface water, as defined in R.61-58.B - Definitions) and serving 1,000 or fewer people.

(b) Following any total coliform-positive sample taken under the provisions of this section, systems must comply with the repeat monitoring requirements and E. coli analytical requirements in R.61-58.17.I.

(c) Once all monitoring required by this section and R.61-58.17.I for a calendar month has been completed, systems must determine whether any coliform treatment technique triggers specified in R.61-58.17.J have been exceeded. If any trigger has been exceeded, systems must complete assessments as required by R.61-58.17.J.

(2) Monitoring frequency for total coliforms.

The monitoring frequency for total coliforms is one sample per month, except as provided for under R.61-58.17.F(3) through (6).

(3) Transition to R.61-58.17 - Revised Total Coliform Rule.

(a) All systems must continue to monitor according to the total coliform monitoring schedules under R.61-58.5.G that were in effect on March 31, 2016, unless any of the conditions in R.61-58.17.F(5) are triggered on or after April 1, 2016, or unless otherwise directed by the Department.

(b) Beginning April 1, 2016, the Department must perform a special monitoring evaluation during each sanitary survey to review the status of the system, including the distribution system, to determine whether the system is on an appropriate monitoring schedule. After the Department has performed the special monitoring evaluation during each sanitary survey, the Department may modify the system's monitoring schedule, as necessary, or it may allow the system to stay on its existing monitoring schedule, consistent with the provisions of R.61-58.17.F. The Department may not allow systems to begin less frequent monitoring under the special monitoring evaluation unless the system has already met the applicable criteria for less frequent monitoring in R.61-58.17.F.

(4) Criteria for reduced monitoring.

(a) The Department may reduce the monitoring frequency from monthly monitoring to no less than quarterly monitoring if the system is in compliance with Department- certified operator provisions and demonstrates that it meets the criteria in R.61- 58.17.F(4)(a)(i) through (4)(a)(iii). A system that loses its certified operator must return to monthly monitoring the month following that loss.

(i) The system has a clean compliance history for a minimum of 12 months.

(ii) The most recent sanitary survey shows the system is free of sanitary defects (or has an approved plan and schedule to correct them and is in compliance with the plan and the schedule), has a protected water source and meets approved construction standards.

(iii) The system meets at least one of the following criteria:

(A) An annual site visit by the Department that is equivalent to a Level 2 assessment or an annual Level 2 assessment by a party approved by the Department and correction of all identified sanitary defects (or an approved plan and schedule to correct them and is in compliance with the plan and schedule).

(B) Cross connection control, as approved by the Department.

(C) Continuous disinfection entering the distribution system and a residual in the distribution system in accordance with criteria specified by the Department.

(D) Demonstration of maintenance of at least a 4-log removal or inactivation of viruses as provided for under R.61-58.16.F(2)(c).

(E) Other equivalent enhancements to water system barriers as approved by the Department.

(b) Reserved

(5) Return to routine monthly monitoring requirements.

Systems on quarterly monitoring that experience any of the events in R.61-58.17.F(5)(a) through (5)(d) must begin monthly monitoring the month following the event. The system must continue monthly monitoring until it meets the reduced monitoring requirements in R.61-58.17.F(4).

- (a) The system triggers a Level 2 assessment or triggers two Level 1 assessments in a rolling 12-month period.
  - (b) The system has an E. coli MCL violation.
  - (c) The system has a coliform treatment technique violation.
  - (d) The system has two monitoring violations under R.61-58.17 in a rolling 12-month period.
- (6) Additional routine monitoring the month following a total coliform-positive sample.

Systems collecting samples on a quarterly frequency must conduct additional routine monitoring the month following one or more total coliform-positive samples (with or without a Level 1 treatment technique trigger). Systems must collect at least three routine samples during the next month, except that the Department may waive this requirement if the conditions of R.61-58.17.F(6)(a), (b), or (c) are met. Systems may either collect samples at regular time intervals throughout the month or may collect all required routine samples on a single day if samples are taken from different sites. Systems must use the results of additional routine samples in coliform treatment technique trigger calculations.

(a) The Department may waive the requirement to collect three routine samples the next month in which the system provides water to the public if the Department, or an agent approved by the Department, performs a site visit before the end of the next month in which the system provides water to the public. Although a sanitary survey need not be performed, the site visit must be sufficiently detailed to allow the Department to determine whether additional monitoring and/or any corrective action is needed. The Department cannot approve an employee of the system to perform this site visit, even if the employee is an agent approved by the Department to perform sanitary surveys.

(b) The Department may waive the requirement to collect three routine samples the next month in which the system provides water to the public if the Department has determined why the sample was total coliform-positive and has established that the system has corrected the problem or will correct the problem before the end of the next month in which the system serves water to the public. In this case, the Department must document this decision to waive the following month's additional monitoring requirement in writing, have it approved and signed by the supervisor of the Department official who recommends such a decision, and make this document available to the EPA and the public. The written documentation must describe the specific cause of the total coliform-positive sample and what action the system has taken and/or will take to correct this problem.

(c) The Department may not waive the requirement to collect three additional routine samples the next month in which the system provides water to the public solely on the grounds that all repeat samples are total coliform negative. If the Department determines that the system has corrected the contamination problem before the system takes the set of repeat samples required in R.61-58.17.I, and all repeat samples were total coliform negative, the Department may waive the requirement for additional routine monitoring the next month.

## **G. Routine monitoring requirements for subpart H public water systems serving 1,000 or fewer people.**

### **(1) General.**

(a) The provisions of this section apply to subpart H public water systems serving 1,000 or fewer people.

(b) Following any total coliform-positive sample taken under the provisions of R.61-58.17.G, systems must comply with the repeat monitoring requirements and E. coli analytical requirements in R.61-58.17.I.

(c) Once all monitoring required by this section and R.61-58.17.I for a calendar month has been completed, systems must determine whether any coliform treatment technique triggers specified in R.61-58.17.J have been exceeded. If any trigger has been exceeded, systems must complete assessments as required by R.61-58.17.J.

(d) Seasonal systems.

(i) Beginning April 1, 2016, all seasonal systems must demonstrate completion of a Department-approved start-up procedure, which may include a requirement for start-up sampling prior to serving water to the public.

(ii) The Department may exempt any seasonal system from some or all of the requirements for seasonal systems if the entire distribution system remains pressurized during the entire period that the system is not operating.

(2) Routine monitoring frequency for total coliforms.

Subpart H systems (including consecutive systems) must monitor monthly. Systems may not reduce monitoring.

(3) Unfiltered subpart H systems.

A subpart H system that does not practice filtration in compliance with R.61-58.10 must collect at least one total coliform sample near the first service connection each day the turbidity level of the source water, measured as specified in R.61-58.10.F(2)(b), exceeds 1 NTU. When one or more turbidity measurements in any day exceed 1 NTU, the system must collect this coliform sample within 24 hours of the first exceedance, unless the Department determines that the system, for logistical reasons outside the system's control, cannot have the sample analyzed within 30 hours of collection and identifies an alternative sample collection schedule. Sample results from this coliform monitoring must be included in determining whether the coliform treatment technique trigger in R.61-58.17.J has been exceeded.

## **H. Routine monitoring requirements for public water systems serving more than 1,000 people.**

(1) General.

(a) The provisions of R.61-58.17.H apply to public water systems serving more than 1,000 persons.

(b) Following any total coliform-positive sample taken under the provisions of R.61-58.17.H, systems must comply with the repeat monitoring requirements and E. coli analytical requirements in R.61-58.17.I.

(c) Once all monitoring required by this section and R.61-58.17.I for a calendar month has been completed, systems must determine whether any coliform treatment technique triggers specified in R.61-58.17.J have been exceeded. If any trigger has been exceeded, systems must complete assessments as required by R.61-58.17.J.

(d) Seasonal systems.

(i) Beginning April 1, 2016, all seasonal systems must demonstrate completion of a Department-approved start-up procedure, which may include a requirement for start-up sampling prior to serving water to the public.

(ii) The Department may exempt any seasonal system from some or all of the requirements for seasonal systems if the entire distribution system remains pressurized during the entire period that the system is not operating.

(2) Monitoring frequency for total coliforms.

The monitoring frequency for total coliforms is based on the population served by the system, as follows:

MINIMUM NUMBER OF POPULATION SERVED			MINIMUM NUMBER OF SAMPLES PER MONTH
1,001	to	2,500	2
1,001	to	2,500	2
2,501	to	3,300	3
3,301	to	4,100	4
4,101	to	4,900	5
4,901	to	5,800	6
5,801	to	6,700	7
6,701	to	7,600	8
7,601	to	8,500	9
8,501	to	12,900	10
12,901	to	17,200	15
17,201	to	21,500	20
21,501	to	25,000	25
25,001	to	33,000	30
33,001	to	41,000	40
41,001	to	50,000	50
50,001	to	59,000	60
59,001	to	70,000	70
70,001	to	83,000	80
83,001	to	96,000	90
96,001	to	130,000	100
130,001	to	220,000	120
220,001	to	320,000	150
320,001	to	450,000	180
450,001	to	600,000	210
600,001	to	780,000	240
780,001	to	970,000	270
970,001	to	1,230,000	300
1,230,001	to	1,520,000	330
1,520,001	to	1,850,000	360
1,850,001	to	2,270,000	390
2,270,001	to	3,020,000	420
3,020,001	to	3,960,000	450
3,960,001	or	more	480

(3) Unfiltered subpart H systems.

A subpart H system that does not practice filtration in compliance with R.61-58.10 must collect at least one total coliform sample near the first service connection each day the turbidity level of the source water, measured as specified in R.61-58.10.F(2)(b), exceeds 1 NTU. When one or more turbidity measurements in any day exceed 1 NTU, the system must collect this coliform sample within 24 hours of the first exceedance, unless the Department determines that the system, for logistical reasons outside the system's control, cannot have the sample analyzed within 30 hours of collection and identifies an alternative sample collection schedule. Sample results from this coliform monitoring must be included in determining whether the coliform treatment technique trigger in R.61-58.17.J has been exceeded.

(4) Reduced monitoring.

Systems may not reduce monitoring, except for non-community water systems using only ground water (and not ground water under the direct influence of surface water) serving 1,000 or fewer people in some months and more than 1,000 persons in other months. In months when more than 1,000 persons are served, the systems must monitor at the frequency specified in paragraph R.61-58.17.H(2). In months when 1,000 or fewer people are served, the Department may reduce the monitoring frequency, in writing, to a frequency allowed under R.61-58.17.E for a similarly situated system that always serves 1,000 or fewer people, taking into account the provisions in R.61-58.17.E(5) through (7).

**I. Repeat monitoring and E. coli requirements.**

(1) Repeat monitoring.

(a) If a sample taken under R.61-58.17.E though R.61-58.17.H is total coliform- positive, the system must collect a set of repeat samples within 24 hours of being notified of the positive result. The system must collect no fewer than three repeat samples for each total coliform-positive sample found. The Department may extend the 24-hour limit on a case-by-case basis if the system has a logistical problem in collecting the repeat samples within 24 hours that is beyond its control. Alternatively, the Department may implement criteria for the system to use in lieu of case-by-case extensions. In the case of an extension, the Department must specify how much time the system has to collect the repeat samples. The Department cannot waive the requirement for a system to collect repeat samples in R.61-58.17.I(1)(a) through (1)(c).

(b) The system must collect all repeat samples on the same day, except that the Department may allow a system with a single service connection to collect the required set of repeat samples over a three-day period or to collect a larger volume repeat sample(s) in one or more sample containers of any size, as long as the total volume collected is at least 300 ml.

(c) The system must collect an additional set of repeat samples in the manner specified in R.61-58.17.I(1)(a) through (1)(c) if one or more repeat samples in the current set of repeat samples is total coliform-positive. The system must collect the additional set of repeat samples within 24 hours of being notified of the positive result, unless the Department extends the limit as provided in R.61-58.17.I(1)(a). The system must continue to collect additional sets of repeat samples until either total coliforms are not detected in one complete set of repeat samples or the system determines that a coliform treatment technique trigger specified in R.61-58.17.J(1) has been exceeded as a result of a repeat sample being total coliform-positive and notifies the Department. If a trigger identified in R.61-58.17.J is exceeded as a result of a routine sample being total coliform- positive, systems are required to conduct only one round of repeat monitoring for each total coliform-positive routine sample.

(d) After a system collects a routine sample and before it learns the results of the analysis of that sample, if it collects another routine sample(s) from within five adjacent service connections of the initial sample, and the initial sample, after analysis, is found to contain total coliforms, then the system may count the subsequent sample(s) as a repeat sample instead of as a routine sample.

(e) Results of all routine and repeat samples taken under R.61-58.17.E through R.61-58.17.I not invalidated by the Department must be used to determine whether a coliform treatment technique trigger specified in R.61-58.17.J has been exceeded.

(2) *Escherichia coli* (*E. coli*) testing.

(a) If any routine or repeat sample is total coliform-positive, the system must analyze that total coliform-positive culture medium to determine if *E. coli* are present. If *E. coli* are present, the system must notify the Department by the end of the day when the system is notified of the test result, unless the system is notified of the result after the Department office is closed and the Department does not have either an after-hours phone line or an alternative notification procedure, in which case the system must notify the Department before the end of the next business day.

(b) The Department has the discretion to allow a system, on a case-by-case basis, to forgo *E. coli* testing on a total coliform-positive sample if that system assumes that the total coliform-positive sample is *E. coli*-positive. Accordingly, the system must notify the Department as specified in R.61-58.17.I(2)(a) and the provisions of R.61-58.5.F(3) apply.

**J. Coliform treatment technique triggers and assessment requirements for protection against potential fecal contamination.**

(1) Treatment technique triggers.

Systems must conduct assessments in accordance with R.61-58.17.J(2) of this section after exceeding treatment technique triggers in R.61-58.17.J(1)(a) and (1)(b).

(a) Level 1 treatment technique triggers.

(i) For systems taking 40 or more samples per month, the system exceeds 5.0% total coliform-positive samples for the month.

(ii) For systems taking fewer than 40 samples per month, the system has two or more total coliform-positive samples in the same month.

(iii) The system fails to take every required repeat sample after any single total coliform-positive sample.

(b) Level 2 treatment technique triggers.

(i) An *E. coli* MCL violation, as specified in R.61-58.17.K(1).

(ii) A second Level 1 trigger as defined in R.61-58.17.J(1)(a), within a rolling 12-month period, unless the Department has determined a likely reason that the samples that caused the first Level 1 treatment technique trigger were total coliform-positive and has established that the system has corrected the problem.

(iii) For systems with approved annual monitoring, a Level 1 trigger in two consecutive years.

(2) Requirements for assessments.

(a) Systems must ensure that Level 1 and 2 assessments are conducted in order to identify the possible presence of sanitary defects and defects in distribution system coliform monitoring practices. Level 2 assessments must be conducted by parties approved by the Department.

(b) When conducting assessments, systems must ensure that the assessor evaluates minimum elements that include review and identification of inadequacies in sample sites; sampling protocol; sample processing; atypical events that could affect distributed water quality or indicate that distributed water quality was impaired; changes in distribution system maintenance and operation that could affect distributed water quality (including water storage); source and treatment considerations that bear on distributed water quality, where appropriate (e.g., small ground water systems); and existing water quality monitoring data. The system must conduct the assessment consistent with any Department directives that tailor specific assessment elements with respect to the size and type of the system and the size, type, and characteristics of the distribution system.

(c) Level 1 Assessments.

A system must conduct a Level 1 assessment consistent with Department requirements if the system exceeds one of the treatment technique triggers in R.61-58.17.J(1)(a).

(i) The system must complete a Level 1 assessment as soon as practical after any trigger in R.61-58.17.J(1)(a). In the completed assessment form, the system must describe sanitary defects detected, corrective actions completed, and a proposed timetable for any corrective actions not already completed. The assessment form may also note that no sanitary defects were identified. The system must submit the completed Level 1 assessment form to the Department within 30 days after the system learns that it has exceeded a trigger.

(ii) If the Department reviews the completed Level 1 assessment and determines that the assessment is not sufficient (including any proposed timetable for any corrective actions not already completed), the Department must consult with the system. If the Department requires revisions after consultation, the system must submit a revised assessment form to the Department on an agreed- upon schedule not to exceed 30 days from the date of the consultation.

(iii) Upon completion and submission of the assessment form by the system, the Department must determine if the system has identified a likely cause for the Level 1 trigger and, if so, establish that the system has corrected the problem, or has included a schedule acceptable to the Department for correcting the problem.

(d) Level 2 Assessments.

A system must ensure that a Level 2 assessment consistent with Department requirements is conducted if the system exceeds one of the treatment technique triggers in R.61- 58.17.J(1)(b). The system must comply with any expedited actions or additional actions required by the Department in the case of an E. coli MCL violation.

(i) The system must ensure that a Level 2 assessment is completed by the Department or by a party approved by the Department as soon as practical after any trigger in R.61-58.17.J(1)(b). The system must submit a completed Level 2 assessment form to the Department within 30 days after the system learns that it has exceeded a trigger. The assessment form must describe sanitary defects detected, corrective actions

completed, and a proposed timetable for any corrective actions not already completed. The assessment form may also note that no sanitary defects were identified.

(ii) The system may conduct Level 2 assessments if the system has staff or management with the certification or qualifications specified by the Department unless otherwise directed by the Department.

(iii) If the Department reviews the completed Level 2 assessment and determines that the assessment is not sufficient (including any proposed timetable for any corrective actions not already completed), the Department must consult with the system. If the Department requires revisions after consultation, the system must submit a revised assessment form to the Department on an agreed- upon schedule not to exceed 30 days.

(iv) Upon completion and submission of the assessment form by the system, the Department must determine if the system has identified a likely cause for the Level 2 trigger and determine whether the system has corrected the problem, or has included a schedule acceptable to the Department for correcting the problem.

### (3) Corrective Action.

Systems must correct sanitary defects found through either Level 1 or 2 assessments conducted under R.61-58.17.J(2). For corrections not completed by the time of submission of the assessment form, the system must complete the corrective action(s) in compliance with a timetable approved by the Department in consultation with the system. The system must notify the Department when each scheduled corrective action is completed.

### (4) Consultation.

At any time during the assessment or corrective action phase, either the water system or the Department may request a consultation with the other party to determine the appropriate actions to be taken. The system may consult with the Department on all relevant information that may impact on its ability to comply with a requirement of R.61-58.17, including the method of accomplishment, an appropriate timeframe, and other relevant information.

## **K. Violations**

### (1) E. coli MCL Violation.

A system is in violation of the MCL for E. coli when any of the conditions identified in R.61-58.17.K(1)(a) through (1)(d) occur.

(a) The system has an E. coli-positive repeat sample following a total coliform- positive routine sample.

(b) The system has a total coliform-positive repeat sample following an E. coli- positive routine sample.

(c) The system fails to take all required repeat samples following an E. coli-positive routine sample.

(d) The system fails to test for E. coli when any repeat sample tests positive for total coliform.

### (2) Treatment technique violation.

(a) A treatment technique violation occurs when a system exceeds a treatment technique trigger specified in R.61-58.17.J(1) and then fails to conduct the required assessment or corrective actions within the timeframe specified in R.61-58.17.J(2) and (3).

(b) A treatment technique violation occurs when a seasonal system fails to complete a Department-approved start-up procedure prior to serving water to the public.

(3) Monitoring violations.

(a) Failure to take every required routine or additional routine sample in a compliance period is a monitoring violation.

(b) Failure to analyze for *E. coli* following a total coliform-positive routine sample is a monitoring violation.

(4) Reporting violations.

(a) Failure to submit a monitoring report or completed assessment form after a system properly conducts monitoring or assessment in a timely manner is a reporting violation.

(b) Failure to notify the Department following an *E. coli*-positive sample as required by R.61-58.17.I(2)(a) in a timely manner is a reporting violation.

(c) Failure to submit certification of completion of Department-approved start-up procedure by a seasonal system is a reporting violation.

## **L. Reporting and recordkeeping.**

(1) Reporting.

(a) *E. coli*.

(i) A system must notify the Department by the end of the day when the system learns of an *E. coli* MCL violation, unless the system learns of the violation after the Department office is closed and the Department does not have either an after-hours phone line or an alternative notification procedure, in which case the system must notify the Department before the end of the next business day, and notify the public in accordance with R.61-58.6.

(ii) A system must notify the Department by the end of the day when the system is notified of an *E. coli*-positive routine sample, unless the system is notified of the result after the Department office is closed and the Department does not have either an after-hours phone line or an alternative notification procedure, in which case the system must notify the Department before the end of the next business day.

(b) A system that has violated the treatment technique for coliforms in R.61-58.17.J must report the violation to the Department no later than the end of the next business day after it learns of the violation, and notify the public in accordance with R.61-58.6.

(c) A system required to conduct an assessment under the provisions of R.61-58.17.J must submit the assessment report within 30 days. The system must notify the Department in accordance with R.61-

58.17.J(3) when each scheduled corrective action is completed for corrections not completed by the time of submission of the assessment form.

(d) A system that has failed to comply with a coliform monitoring requirement must report the monitoring violation to the Department within 10 days after the system discovers the violation, and notify the public in accordance with R.61-58.6.

(e) A seasonal system must certify, prior to serving water to the public, that it has complied with the Department-approved start-up procedure.

(2) Recordkeeping.

(a) The system must maintain any assessment form, regardless of who conducts the assessment, and documentation of corrective actions completed as a result of those assessments, or other available summary documentation of the sanitary defects and corrective actions taken under R.61-58.17.J for Department review. This record must be maintained by the system for a period not less than five years after completion of the assessment or corrective action.

(b) The system must maintain a record of any repeat sample taken that meets Department criteria for an extension of the 24-hour period for collecting repeat samples as provided for under R.61-58.17.I(1)(a).